

REMARKS

Claims 1-9 are pending in the application, of which claims 1, 8 and 9 are independent. Claims 1-3, 7 and 8 are amended. Claim 9 is new.

Rejection Under 35 U.S.C. § 112

The Examiner rejected claims 1-8 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter of the invention. The Examiner objected to claims 2 and 3 under 37 C.F.R. § 1.75(c) as being in improper dependent form. The Examiner objected to claim 7 as lacking an article for antecedent basis. Applicant has amended independent claims 1-3, 7 and 8. Applicant respectfully requests that the Examiner withdraw the rejection and objections.

Rejection Under 35 U.S.C. § 103

The Examiner rejected claims 1-8 under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 6,177,129 to Wagner *et al.* (Wagner) in view of either U.S. Patent No. 6,306,765 to Sato or U.S. Patent No. 5,976,259 to Yamazaki.

Claim 1 relates to a plasma processing apparatus. The apparatus comprises a plurality of plasma processing units, each having a vacuum processing chamber. The vacuum processing includes a mounting stage for mounting a substrate with a fixed reference point and a wave guide bent at an angle for introducing high frequency waves into said vacuum processing chamber for converting process gas to plasma by high frequency waves and processing said substrate by said plasma. The apparatus also comprises a common transfer chamber airtightly connected to said plurality of plasma processing units and including a transfer arm for transferring said substrate to said mounting stage in a fixed transfer direction and in a state that said reference point of said substrate is positioned with respect to said transfer arm, wherein for each of said

plurality of plasma processing units, the position of said wave guide in relation to said transfer direction of said transfer arm is the same.

Wagner teaches vacuum treatment stations for sequential treatment of semiconductor wafers. Several stations 43_a to 43_c are connected to a transport chamber 40 containing a transport robot 42. See Wagner, column 9, lines 15-19. The workpieces are transported between vacuum stations 43 in batch mode, that is, robot 42 picks up one workpiece batch B_T in one of the vacuum stations and supplies it to one of the others. See Wagner, column 9, lines 26-29; FIG. 4. In another embodiment, a transport chamber 70 includes a transfer robot 72 which can be extended or retracted. See Wagner column 11, lines 26-26 and 51-53; FIG. 6. However, as acknowledged by the Examiner, Wagner fails to teach or suggest a waveguide. The Examiner relies upon either Sato or Yamazaki for this teaching.

Sato teaches a CVD apparatus 30 having first and second CVD devices 31, 41. See Sato, column 4, lines 66-67. CVD device 31 includes a plasma chamber 32 and a microwave guide 33 connected to the plasma chamber at the upper side. See Sato, column 3, lines 51-54.

Yamazaki teaches a plasma enhanced CVD system having a reaction chamber 1. A resonating space is formed above the reaction chamber as the inside space of a resonance chamber 2. Microwaves are radiated into the resonance space from a microwave oscillator 3 via an isolator 4 through a window made of synthetic quartz. See Yamazaki, column 2, lines 61-column 3, line 3.

Claims 1 and 8 each recite a wave guide bent at an angle. Both Sato and Yamazaki, either alone or in combination with Wagner, fail to teach or suggest any

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plasma processing apparatus, as claimed herein, including, inter alia, wave guide bent at an angle. Sato discloses only a microwave guide extending into the upper side of a plasma chamber. Yamazaki teaches only a resonance chamber that appears to be straight. Accordingly, the combination of Wagner and Sato or Yamazaki fail to teach or suggest all the elements of the claimed invention. Thus, claims 1 and 8 are allowable over these combinations. Applicants respectfully request that the Examiner reconsider and withdraw this rejection.

Claims 2-7 depend from and add additional features to independent claim 1. Thus, these claims are also allowable for at least the reasons set forth above. Accordingly, Applicants respectfully request that the Examiner withdraw the rejection and allow these claims.


Conclusion

All the objections and rejections have been overcome, traversed or otherwise rendered moot. Accordingly, the pending claims are now in a condition for allowance. Applicants respectfully request that the Examiner withdraw all outstanding objections and rejections, and pass these claims to allowance.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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APPENDIX
VERSION WITH MARKINGS TO SHOW CHANGES MADE

AMENDMENTS TO THE CLAIMS

Claim 9 is new

Claims 1-3, 7 and 8 are amended as follows:

1. (Amended) A plasma processing apparatus comprising:

a plurality of plasma processing units, each having a vacuum processing chamber including a mounting stage for mounting a substrate with a fixed reference point and a wave guide bent at an angle for introducing high frequency waves into said vacuum processing chamber for converting process gas to plasma by high frequency waves and processing said substrate by said plasma; and

a common transfer chamber [which is] airtightly connected to said plurality of plasma processing units and [includes] including a transfer arm for transferring said substrate to said mounting stage in a fixed transfer direction and in a state that said reference point of said substrate is positioned with respect to said transfer arm,

wherein [between said plasma processing units, location relationship] for each of said plurality of plasma processing units, the position of said wave guide in relation to said transfer direction of said transfer arm is the same.

2. (Amended) The plasma processing apparatus according to Claim 1, wherein the apparatus is configured to perform [said process to be performed for said substrate is] a film forming process.

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3. (Amended) The plasma processing apparatus according to Claim 1, wherein the apparatus is configured to perform [said process to be performed for said substrate is] an etching process.

7. (Amended) The plasma processing apparatus according to Claim 1, wherein said wave guide of each of said plasma processing units has the same length and the same sectional shape.

8. (Amended) A plasma processing method for performing a predetermined process for a substrate by a plasma processing apparatus comprising a plurality of plasma processing units, each having a vacuum processing chamber including a mounting stage for mounting a substrate with a fixed reference point and a wave guide bent at an angle for introducing high frequency waves into said vacuum processing chamber for converting process gas to plasma by high frequency waves and processing said substrate by said plasma; and a common transfer chamber [which is] airtightly connected to said plurality of plasma processing units and [includes] including a transfer arm for transferring said substrate to said mounting stage in a fixed transfer direction, comprising the steps of:

transferring said substrate with [a] said reference point to said mounting stages of said plasma processing units from said transfer chamber, [and making location relationship of] said reference point of said substrate [to be mounted on said mounting stage] being positioned the same in each of said plasma processing units with respect to said wave guide, [the same among said plasma processing units] and[.]

performing a plasma process for said substrate while the position [in a state that location relationship] of said reference point of said substrate [to be mounted on said mounting stage] in relation to said wave guide is kept the same [between] for each of said plasma processing units.

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